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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/376,875	08/18/1999	GREGORY M. CHRYSLER	884.148US1	7059
21186	7590	09/08/2005	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402-0938			LEO, LEONARD R	
			ART UNIT	PAPER NUMBER
			3753	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/376,875

Applicant(s)

CHRYSLER ET AL.

Examiner

Leonard R. Leo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2005.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-9 and 22-46 is/are pending in the application.  
4a) Of the above claim(s) 1-3, 5-9, 22-27 and 32-43 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 28-31 and 44-46 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Claims 1-3, 5-9 and 22-46 are pending, and claims 1-3, 5-9, 25-26, 33-35 remain withdrawn.

#### *Election/Restrictions*

Applicant's election with traverse of the species of Figure 2 (with bonding) in the reply filed on June 22, 2005 is acknowledged. The traversal is on the ground(s) that the election requirement is untimely and there would be no serious burden. This is not found persuasive because during any time during prosecution an election requirement may be made, and as clear from the record, the examination of two mutually exclusive species is burdensome. As demonstrated by the prior art of record, there is a patentable distinction between a bonded device versus a clamped device via a clip or even two clips, unless applicants state for the record that they are obvious variants of one another. The Examiner regrets any difference in examining styles from the previous Examiner of record. The Office is unable foresee all aspects and variations that applicants will claim the invention throughout the prosecution.

Applicants' chronology of the prosecution is incorrect. Amended claims reciting "a clip" were filed on **March 4, 2002** in response to the Final Office action mailed on **December 31, 2001**. The amendment was entered in the RCE filed on April 12, 2002. An action on the merits of the claims was mailed on June 4, 2002. However, in the After Final amendment filed on April 30, 2003, new claims were directed to employing "bonding", "at least one clip" and "at least two clips". However, in response to the RCE filed on June 2, 2003, the Office action mailed on June 25, 2003 withdrew claims believed directed to non-elected species in the Election of Paper No. 4 mailed on July 20, 2000, since applicants failed to list newly submitted claims readable on the

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elected species. In response to the amendment filed on August 28, 2003, where new claims were submitted without listing readability on the elected species, a Non-Responsive amendment was mailed on November 13, 2003.

The requirement is still deemed proper and is therefore made FINAL.

Claims 22-24, 27, 32 and 36-43 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim.

### *Claim Objections*

Claim 46 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The recitation of "brazing" or "soldering" does not further limit the recitation of "wherein thermal gel, epoxy, phase-changed material or thermal interface material" in claim 44.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morosas or Wotring in view of Azar et al.

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Morosas (Figure 4, column 3, lines 60-65) discloses all the claimed limitations except a specific aspect ratio of the fin height to fin thickness.

Wotring (column 2, lines 58-60) discloses all the claimed limitations except a specific aspect ratio of the fin height to fin thickness.

Azar et al discloses a heat sink comprising a folded fin in serpentine fashion having an aspect ratio of the fin height to fin thickness of about 18 to 200 (column 4, lines 3-45,  $\tau/H = 0.005$  to  $0.055$ ) for the purpose of optimizing heat exchange.

Since Morosas or Wotring and Azar et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Azar et al would have been recognized in the pertinent art of Morosas or Wotring.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Morosas or Wotring an aspect ratio of the fin height to fin thickness of about 18:1 to 200:1 for the purpose of optimizing heat exchange as recognized by Azar et al.

Claims 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morosas or Wotring in view of Azar et al as applied to claims 44-46 above, and further in view of Bishop et al.

The combined teachings of Morosas or Wotring and Azar et al lacks a second fan.

Bishop et al discloses a heat sink comprising a first fan 5 and a second fan 6 for the purpose of providing turbulent and impingement airflow to improve heat exchange.

Since Morosas or Wotring and Bishop et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Bishop et al would have been recognized in the pertinent art of Morosas or Wotring.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Morosas or Wotring a second fan for the purpose of providing turbulent and impingement air flow to improve heat exchange as recognized by Bishop et al. Although, the fans are remotely positioned from the heat sink, it would have been obvious to one of ordinary skill in the art to position the fans onto the heat sink to minimize pressure loss from the fan to the heat sink.

#### *Response to Arguments*

The rejection under 35 U.S.C. 112, second paragraph, is withdrawn in view of the amendment. The Examiner wishes to thank applicants for clarifying the meaning of “aspect ratio” in the claims. Commonly assigned US Patent No. 5,912,802 discloses “an aspect ratio is the ratio of the air gap height to the air gap width for a given heat sink channel.”

Applicants’ remarks with respect to the grounds of rejections applied to the newly withdrawn claims are believed moot.

The rejection of claims 28-31 in view of Azar et al and Bishop et al is withdrawn, since the structure of “trimmed openings” was overlooked.

With respect to the rejection of claims 44-46, the primary reference of Morosas or Wotring discloses a thermally conductive sheet in an accordion fold having trimmed openings, a base attached by epoxy, and a fan mounted on top providing air to more than fifty percent of the surfaces, but do not disclose a specific aspect ratio. The secondary reference of Azar et al

teaches one of ordinary skill in the art to employ a fin height to fin thickness aspect ratio of about 18 to 200 to optimize heat transfer.

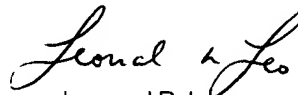
With respect to the rejection of claims 28-31, the secondary reference of Bishop et al teaches one of ordinary skill in the art to employ a second fan for the purpose of providing turbulent and impingement air flow to improve heat exchange.

### *Conclusion*

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on (571) 272-4930. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

  
Leonard R. Leo  
Primary Examiner  
Art Unit 3753

September 5, 2005